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APPLICATION

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TITLE: Blind Postscript Function for Electronic Mail

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BLIND POSTSCRIPT FUNCTION FOR ELECTRONIC MAIL

Background

The invention relates generally to electronic mail systems and, more particularly but not by way of limitation, to methods and systems that provide blind-postscript messaging capability.

Many different types of electronic mail systems exist today. Most of these systems provide the ability to designate one or more primary recipients through a "TO" field and one or more secondary recipients through a " CC" or carbon-copy field. It is common that all recipients designated through the use of TO and CC fields are identified to all other recipients. That is, if person1@place1.com is designated as a TO recipient and person2@place2.org is designated as a CC recipient, both person1 and person2 will be able to determine that the other was also sent the electronic mail message.

To provide some privacy, many electronic mail systems allow a composer (i.e., that person generating an electronic mail message) to designate one or more non-disclosed recipients through a "BCC" or blind carbon-copy field. Extending the above example: if person1@place1.com is designated as a TO recipient, person2@place2.org is designated as a CC recipient and person3@place3.net is designated as a BCC recipient, person3 will receive a copy of the associated electronic mail message but will not be displayed in the message header of the TO and CC designated recipients. Accordingly, the BCC function may be used to route a message to a third party without alerting other recipients that this is being done.

While the privacy afforded by the BCC function is often useful, it is limited. For example, there is currently no means to associate a message with a BCC recipient so that only the designated BCC recipient receives the message. Thus, it would be beneficial to provide electronic messaging capability that supports the generation of private messages to BCC designated recipients.

Summary

In one embodiment of the invention a method to provide blind-postscript messaging includes generating a first message, identifying a primary recipient of the first message, identifying a secondary recipient of the first message, associating a second message with the identified secondary recipient and sending only the first message to the primary recipient and the first and second messages to the secondary recipient. In another embodiment, the act of sending also includes withholding the identity of the secondary recipient from the primary recipient.

In another embodiment of the invention, an electronic mail system includes a display unit, a network means for operatively coupling the electronic mail system to a digital network and a computer unit operatively coupled to the display unit, the computer unit including a processor, a network means and a storage device, the storage device having stored thereon instructions for providing blind-postscript messaging capability.

In some embodiments of a blind-postscript messaging method and system, a user may associate a first blind-postscript message to one or more blind-postscript recipients, and a second (or no) blind-postscript message to another one or more blind-postscript recipients. In general, recipients of blind-postscript messages are not identified to the primary recipients of the associated electronic mail message.

Brief Description of the Drawings

Figure 1 shows an electronic mail message composition window in accordance with one embodiment of the invention.

Figure 2 shows a blind-postscript message composition window in accordance with one embodiment of the invention.

Figure 3 shows a blind-postscript recipient selection window in accordance with one embodiment of the invention.

Figure 4 shows a blind-postscript recipient selection window in accordance with another embodiment of the invention.

Figure 5 shows a blind-postscript message management window in accordance with one embodiment of the invention.

Figure 6 shows a blind-postscript recipient edit window in accordance with one embodiment of the invention.

Figure 7 shows, in flow-chart form, a blind-postscript messaging technique in accordance with one embodiment of the invention.

Figure 8 shows, in block diagram form, a computer system in accordance with one embodiment of the invention.

Detailed Description

The invention relates generally to electronic mail systems and, more particularly but not by way of limitation, to methods and devices for providing a blind-postscript messaging capability in electronic mail systems. The following embodiments of the invention, described in terms of a Microsoft© Windows-like graphical user interface, are illustrative only and are not to be considered limiting in any respect.

Referring to FIG. 1, electronic mail Message Composition window **100** in accordance with one embodiment of the invention includes: TO field **105**, FROM field **110**, SUBJECT field **115**, CC field **120**, BCC field **125**, BPS button **130**, ATTACH field **135**, primary message field **140** and support buttons **145**. The TO **105**, FROM **110**, SUBJECT **115**, CC **120**, BCC **125**, ATTACH **135** and primary message **140** fields function as in conventional electronic mail systems. In addition, support buttons **145** typically provide "Send," "Cancel," "Forward," "Attach," "Spell Check," "Print," "Text Formatting" and "Address Book" functionality, although not all electronic mail systems provide all of these functions while some provide additional functions.

In one embodiment of the invention, a secondary message (hereafter, the "blind-postscript" message) may be associated with those electronic mail

addresses identified in BCC field **125**, wherein the blind-postscript message is sent to the identified BCC field recipients and not to those recipients identified in the TO and CC fields. In another embodiment of the invention, a blind-postscript message may be selectively associated with one or more electronic mail addresses identified in BCC field **125**, wherein the blind-postscript message is sent only to the selected BCC recipients and not to those recipients identified in the TO and CC fields. In still another embodiment of the invention, each designated BCC recipient may have a unique blind-postscript message associated with it, the blind-postscript messages being sent only to the associated BCC recipient and not to other BCC recipients or to the identified TO and CC field recipients. A blind-postscript message may be associated with the primary electronic mail message in any manner desired. For example, the blind-postscript message may be prepended, appended or attached as a separate file to the primary electronic mail message.

Referring to FIG. 2, in one embodiment of the invention when a user activates BPS button **130**, BPS Composition window **200** is presented. The user may then enter a blind-postscript message into field **205** and complete the process by activating OK button **210** or may cancel the blind-postscript operation by activating CANCEL button **215**. Alternatively, a BCC recipient may be identified through use of an email application's "address book" function. One of ordinary skill in the art will recognize that additional functionality may be added to BPS Composition window **200**. For example, text formatting and spell check capabilities may be provided through additional buttons or as menu items (menus not shown in FIG. 2).

Referring to FIG. 3, in another embodiment of the invention when a user activates BPS button **130**, BPS Recipient Selection window **300** is presented. BPS Recipient Selection window **300** may be used when fewer than all identified BCC recipients may be designated to receive a blind-postscript message. In this embodiment, a user may select one or more BCC recipients from BCC list **305** (list **305** can include all BCC recipients identified in BCC field **125**). Once

selected, the user may transition to a blind-postscript composition window (for example, BPS Composition window **200**) by activating BPS MSG button **310** or may cancel the operation by activating CANCEL button **315**. In one embodiment, when the user has completed composing their blind-postscript message (via a blind-postscript composition window) they are returned to primary Message Composition window **100**. As a user convenience, activation of BPS ALL button **320** may act to select all entries in BCC list **305** and transition to a blind-postscript composition window. Entries in BCC list **305** may be selected in any manner desired. For example, a single mouse-click on an entry may select that entry and a "control-mouse-click" may select a second entry, and so on.

Referring to FIG. 4, in yet another embodiment of the invention, functionality in accordance with FIG. 3 may be augmented to allow the creation of individual blind-postscript messages through BPS Recipient Selection window **400**. Operation in accordance with FIG. 4 is similar to that outlined above for FIG. 3. However, after a user completes composing a blind-postscript message to one (or more) selected BCC recipients through a blind-postscript composition window (for example, BPS Composition window **200**), the user may be returned to BPS Recipient Selection window **400**. Here, the user may select another one or more BCC recipients for another blind-postscript message (repeating the acts described above) or may activate DONE button **405** to indicate they are through creating blind-postscript messages. In addition, the user may cancel any blind-postscript messages generated during the current invocation of BPS Recipient Selection window **400** by activating CANCEL button **315**.

Referring now to FIG. 5, BPS Message Management window **500** may be used to assist a user manage those blind-postscript messages associated with a primary electronic mail message. Blind-postscript message list **505** can identify all blind-postscript messages associated with the current primary electronic mail message. The user may select one or more message list entries (see discussion above) and edit the message by activating EDIT button **510** or delete the selected message(s) by activating DELETE button **515**. When through, the user

may activate DONE button **520** to invoke the changes or may activate CANCEL button **525** to cancel any edits or deletions made during the current invocation of BPS Message Management window **500**.

Additional functionality, such as a Select All button, may be provided to BPS Message Management window **500**. Further, a means to identify the recipient(s) associated with a listed blind-postscript message may be provided. For example, when a user places their mouse over a blind-postscript message list entry, a pop-up message may identify the BCC recipients designated to receive that message. In another embodiment, shown in FIG. 6, a user may single (or double) click a blind-postscript message list entry to generate BPS Edit window **600**. As shown, BPS Edit window **600** may include an editable list (field **605**) of recipients associated with the blind-postscript message identified in field **610**. From window **600**, the user may edit the message's recipient list by activating EDIT button **615**, indicate they have completed their editing by activating DONE button **620**, or may cancel the operation without invoking any changes made during the current invocation of BPS Edit window **600** by activating CANCEL button **625**.

One method to provide blind-postscript messaging capability in accordance with the invention is shown if FIG. 7. A user begins by composing a primary message (block **700**), where the primary message is targeted to those recipients designated in the message's TO and CC fields (see FIG. 1, for example). If the user wants to send a private message to one or more BCC designated recipients (the "yes" prong of diamond **705**), they compose the message or messages (block **710**) and associate it with one or more designated BCC recipients (block **715**). As discussed above, some embodiments of the invention provide that the same blind-postscript message be sent (associated with) all designated BCC recipients while other embodiments allow different designated BCC recipients to receive different (or no) blind-postscript message. In addition, edit loops provide a means to edit either the blind-postscript message (edit loop **720**) or the message's recipients (edit loop **730**). Edit loops

725 and **730** may be implemented, for example, as illustrated in FIGS. 3 through 6. Once both the primary and blind-postscript messages are composed, the blind-postscript message and the primary message is sent to the designated BCC recipients (block **730**) and the primary message is sent to the designated TO and CC recipients (block **735**). It is noted, BCC recipients are not identified to TO and CC designated recipients. In addition, one BCC recipient need not be identified to another BCC recipient. As describe above, when the blind-postscript message is sent (block **730**) it may be prepended, appended or attached as a separate file to the primary message.

If the user does not want to send a private message to one or more BCC designated recipients (the "no" prong of diamond **705**), the primary message is sent to the designated primary recipients (block **735**) as in conventional electronic mail systems.

Referring now to FIG. 8, computer system **800** in accordance with one embodiment of the invention includes display unit **805**, keyboard **810** and computer unit **815**. Computer unit **815**, in turn, includes processor **820**, long-term storage **825**, volatile storage **830** and network adapter **835**. Network adapter **835** allows computer system **800** to communicate with other computer systems via network **840**. By way of example, network adapter **835** could be a modem or a Ethernet connectivity device and network **840** could be the Internet or a private intranet. Program code **845** comprises computer-readable instructions that, when executed by processor **820,** provides some or all of the functionality described herein. Program code **845** is conventionally stored in long-term storage **825** and, when invoked by the user (or the user's electronic mail application), temporarily loads into volatile storage **830** from which processor **820** executes it. Processor **820** may be a single computer processor, a plurality of computer processors coupled by a communications link, or a custom designed state machine. Long-term storage **825** may be any storage device suitable for tangibly embodying program instructions such as all forms of non-volatile memory including, but not limited to: semiconductor memory

devices such as EPROM (Electrically Programmable Read Only Memory), EEPROM (Electrically Erasable Programmable Read Only Memory), and flash devices; magnetic disks (fixed, floppy, and removable); other magnetic media such as tape; and optical media such as CD-ROM disks. Volatile storage **830** may be any memory including, for example, DRAM (Dynamic Random Access Memory) and SRAM (Static Random Access Memory).

One of ordinary skill in the art will recognize that the operational details described above in terms of FIGS. 1 through 8 may be modified without departing from the scope of the invention. For example, acts in accordance with FIG. 7 may be performed in any practical order so long as blind-postscript messages sent to BCC designated recipients are not also sent to designated TO and CC recipients. In addition, BPS button **130** may be disabled (or not presented to the user at all), until at least one BCC recipient is designated. Additionally, visual cues to indicate that different BCC recipients are associated with different blind-postscript messages may be used. To illustrate the latter, BCC recipients associated with a first blind-postscript message may be displayed in a first color and BCC recipients associated with a second (or no) blind-postscript message may be displayed in a second color. Still further, blind-postscript messaging capability in accordance with the invention may be implemented as program code (e.g., code **845**) that is integral to an electronic mail application or it may be implemented as an add-in (also referred to as a "plug-in") code module that dynamically modifies the operation of an electronic mail application. Yet further, the functionality described in terms of FIGS. 1 through 6 may be provided through menus and not as buttons and/or combined (or separated) to provide a blind-postscript messaging system using fewer (or more) user-interface windows.

While the invention has been disclosed with respect to a limited number of embodiments, numerous additional modifications and variations will be appreciated by those skilled in the art. It is intended, therefore, that the

following claims cover all such modifications and variations that may fall within the true sprit and scope of the invention.